Claims

1. An isolated lipopeptide comprising the formula represented in Figure 1.

2. The lipopeptide of claim 1, comprising a multilamellar liposome.

3. The lipopeptide of claim 1, comprising the formula represented in any one of Figure 1 or Figure 2.

4. The lipopeptide of claim 3, comprising a multilamellar liposome.

5. The lipopeptide of claim 1, comprising the formula represented in Figure 2.

6. The lipopeptide of claim 5, further comprising a multilamellar liposome.

7. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a therapeutically effective amount of the lipopeptide of claim 1; and a pharmaceutically acceptable carrier.

8. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a therapeutically effective amount of the lipopeptide of claim 3; and a pharmaceutically acceptable carrier.

9. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a therapeutically effective amount of the lipopeptide of claim 5; and a pharmaceutically acceptable carrier.

10. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a therapeutically effective amount of the lipopeptide of claim 6; and a pharmaceutically acceptable carrier.

11. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a first anti-neoplastic agent comprising a therapeutically effective amount of the lipopeptide of claim 1; a multilamellar liposome; a therapeutically effective amount of a second anti-neoplastic agent; and a pharmaceutically acceptable carrier.

12. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a first anti-neoplastic agent comprising a therapeutically effective amount of the lipopeptide of claim 3; a multilamellar liposome; a therapeutically effective amount of a second anti-neoplastic agent; and a pharmaceutically acceptable carrier.

13. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a first anti-neoplastic agent comprising a therapeutically effective amount of the lipopeptide of claim 5; a therapeutically effective amount of a second anti-neoplastic agent; and a pharmaceutically acceptable carrier.

14. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a first anti-neoplastic agent comprising a therapeutically effective amount of the lipopeptide of claim 6; a therapeutically effective amount of a second anti-neoplastic agent; and a pharmaceutically acceptable carrier.

15. The pharmaceutical composition of claim 13, wherein said second anti-neoplastic agent or therapeutic is selected from the group consisting of: CPT-11; topoisomerase I inhibitors; paclitaxel; taxotere; modified taxane analogs; cisplatin; doxorubicin; and ifosfamide.

16. The pharmaceutical composition of claim 14, wherein said second anti-neoplastic agent or therapeutic is selected from the group consisting of: CPT-11; topoisomerase I inhibitors; paclitaxel; taxotere; modified taxane analogs; cisplatin; doxorubicin; and ifosfamide.

17. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a therapeutically effective amount of the lipopeptide of claim 1; a multilamellar liposome; a therapeutically effective amount of one or more cytokines; and a pharmaceutically acceptable carrier.

18. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a therapeutically effective amount of the lipopeptide of claim 4; a multilamellar liposome; a therapeutically effective amount of one or more cytokines; and a pharmaceutically acceptable carrier.

19. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a therapeutically effective amount of the lipopeptide of claim 5; a therapeutically effective amount of one or more cytokines; and a pharmaceutically acceptable carrier.

20. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a therapeutically effective amount of the lipopeptide of claim 6; a therapeutically effective amount of one or more cytokines; and a pharmaceutically acceptable carrier.

21. The pharmaceutical composition of claim 19, wherein said one or more cytokines is selected from the group consisting of: TNF-α; IL-1β; IL-6; G-CSF; GM-CSF.

22. The pharmaceutical composition of claim 20, wherein said one or more cytokines is selected from the group consisting of: TNF-α; IL-1β; IL-6; G-CSF; GM-CSF.

23. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 7.

24. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 8.

25. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 9.

26. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective

amount of the pharmaceutical composition of claim 10.

27. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 11.

28. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 12.

29. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 13.

30. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 14.

31. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 15.

32. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 16.

33. A pharmaceutical composition useful in the treatment of a side effect resulting from treatment of a subject with neoplasia, comprising: a therapeutically effective amount of the lipopeptide of claim 5; and a pharmaceutically acceptable carrier.

34. A pharmaceutical composition useful in the treatment of a side effect resulting from treatment of a subject with neoplasia, comprising: a therapeutically effective amount of the lipopeptide of claim 6; and a pharmaceutically acceptable carrier.

35. A method of treating a subject being treated with a neoplastic agent or therapeutic in an amount sufficient to cause a side effect, which method comprises administering to said subject the pharmaceutical composition of claim 33, in an amount effective to alleviate or prevent said side effect.

36. A method of treating a subject being treated with a neoplastic agent or therapeutic in an amount sufficient to cause a side effect selected from the group consisting of: myelosupression, mucositis, and peripheral neuropathy, which method comprises administering to said subject the pharmaceutical composition of claim 33, in an amount effective to alleviate or prevent said side effect.

37. A method of treating a subject being treated with a neoplastic agent or therapeutic in an amount sufficient to cause a side effect, which method comprises

administering to said subject the pharmaceutical composition of claim 34, in an amount effective to alleviate or prevent said side effect.

38. A method of treating a subject being treated with a neoplastic agent or therapeutic in an amount sufficient to cause a side effect selected from the group consisting of: myelosupression, mucositis, and peripheral neuropathy, which method comprises administering to said subject the pharmaceutical composition of claim 34, in an amount effective to alleviate or prevent said side effect.

39. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 17.

40. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 18.

41. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 19.

42. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 20.

43. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 21.

44. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 22.

45. A pharmaceutical composition useful in the treatment of neoplasia, comprising: a first anti-neoplastic agent comprising a therapeutically effective amount of a lipopeptide; a therapeutically effective amount of a second anti-neoplastic agent; and a pharmaceutically acceptable carrier, wherein the first neoplastic agent comprises a lipopeptide selected from the group consisting of: MTP-PE; MLV-MTP-PE; CGP31362; MLV-CGP31362; JBT3002; and MLV-JBT3002.

46. A method of treating neoplasia, comprising: administering to a subject with neoplasia by a clinically acceptable route of delivery a therapeutically effective amount of the pharmaceutical composition of claim 45.

47. The pharmaceutical composition of claim 7, further comprising a pharmaceutically acceptable carrier in tablet form.

48. The pharmaceutical composition of claim 8, further comprising a pharmaceutically acceptable carrier in tablet form.

49. A method of upregulating IL-15 production comprising, administering to a

subject a pharmaceutical composition that comprises an isolated lipopeptide comprising the formula represented in Figure 1.

50. A method of upregulating IL-15 production comprising, administering to a subject a pharmaceutical composition that comprises an isolated lipopeptide comprising the formula represented in Figure 2.

51. A method of treating a subject being treated with a neoplastic agent or therapeutic in an amount sufficient to cause a side effect, which method comprises administering to said subject a pharmaceutical composition that in a therapeutically effective concentration upregulates IL-15 production.

52. The method of claim 51, wherein said pharmaceutical composition comprises an isolated lipopeptide comprising the formula represented in Figure 1.

53. The method of claim 51, wherein said pharmaceutical composition comprises an isolated lipopeptide comprising the formula represented in Figure 2.